TECHNICAL INFORMATION ON BUILDING MATERIALS

TIBM - 39

FOR USE IN THE DESIGN OF LOW-COST HOUSING

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THE NATIONAL BUREAU OF STANDARDS
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TYPES OF DECKS ADAPTED TO BITUMINOUS BUILT-UP ROOFING

Bituminous built-up roofing is particularly adaptable for flat roofs such as are usually found on hotels, apartment houses, industrial buildings, etc., but has also been used to considerable extent on smaller structures where low pitch roofs are desired. It may be applied to roof decks of wood, poured concrete or gypsum, precast concrete or gypsum blocks, book tile and steel, and when properly constructed should give long service with but little attention. Insulation may be incorporated with built-up roofing on any of the above mentioned deck types. The Underwriters' Laboratories, Inc., established by the National Board of Fire Underwriters, has issued specifications for the construction of built-up roofing under Classes A, B, and C; Class A being effective against severe fire exposure, Class B against moderate fire exposure, and Class C against light fire exposure.

Following are some general comments applicable to each type of roof deck:

Wood Decks: Roof decks of wood should have a nominal thickness of 7/8" with all end joints bearing on, and securely nailed to rafters. Rafters should be so spaced as to prevent any perceptible deflection under a load of one hundred and fifty pounds. Wide cracks and knot holes must be covered with metal nailed to the sheathing. Use must be made of seasoned lumber to avoid undue strain which would tend to tear the membrane roofing. Before applying felts, the deck must be smooth, dry, and clean.

Concrete and Gypsum: Roof decks of these materials, whether poured or constructed of precast blocks, should be finished smooth before applying the roof. Depressions should be filled with mortar and high spots leveled.

Book Tile: Decks of this type should be surfaced with a smooth coating of portland cement mortar, not less than one-half inch thick, and should be allowed to set and dry before the roof is applied.

Steel Decks: Steel decks invariably carry an approved insulation. Unless primed when manufactured they should be given a priming coat of asphalt primer followed by a mop coat of roofing asphalt, into which, the insulation is embedded while the asphalt is hot. Some means of fastening the insulation to the steel deck must be provided on slopes of more than two inches to the foot. The built-up roofing is then applied over the insulation as over other surfaces.

Some specifications for asphalt and asbestos felt roofs recommend a layer of asphalt-saturated asbestos felt cemented to the steel deck under the insulation, where humid conditions exist.

Insulation: Any of the before mentioned types of roof decks may be covered with an approved insulation. The type selected must retain roofing nails, and be thoroughly dry. Installation of the roofing should immediately follow application of the insulation and, in no case, should more insulation be applied than can be protected from sudden weather changes.

For a condensed summary of the Federal Specifications covering materials used in the construction of bituminous built-up roofs; also for methods of laying various types of such roofs (not covered by Federal specifications), reference may be made to Navy Department Specification No. 7Yg, "Roofing, Siding and Sheet Metal Work; Dampproofing and Membrane Waterproofing", obtainable free, upon request, from the Bureau of Yards and Docks, Navy Department, Washington, D. C.